

Evolution and culture; and culture and evolution.

Abstract

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Most recent discussion of the biological basis of cultural diversity has been polarized by the abuses of racist exploitation. In fact, it has been next to impossible to make scientifically defensible conclusions about biological aspects of human nature in the face of the overwhelming importance of cultural and social factors in modulating the outcomes of human development. We have only to look at the impact of nutrition, and prenatal and early childhood infection, to see how these may overwhelm genetic factors in culture.

Methods are just now becoming available for the application of objective measures of inborn (i.e. DNA) differences among different ethnic groups. The outstanding conclusion is how much greater is the inter-individual variation within groups than that between them. I submit further that the most obvious differences among groups: outward appearance of skin and conformation of face and body are maintained more by sexual selection -- group pressures towards conformity -- than by natural adaptation.

Further, the concept that "genetics is destiny" is itself fallacious: genetic traits like diabetes or disease susceptibility are predispositions, and remain subject to many interactions with and interventions from the environment and from therapeutic art.

The most productive consequence of the study of genetic factors in human development is the better understanding of these predispositions, and the application of "euphenic" remedies (like insulin for diabetes) rather than eugenic intrusions. So little of the "genetic potential" of any individual is now realized that that fulfillment should be our primary agenda.

-- consensus only slowly under way about main issues of timing of human evolution, and reconciliation of the paleontological with the molecular DNA evidence.

[My reading of the molecular clocks is that the spread of H. sapiens from Africa dates back to about 200,000 YBP; compared to say 5,000,000 YBP for the separation of H. line of descent from chimpanzee. Crudely, the inter-individual variability is about 4% of the inter-species; we don't have good measures yet of the inter-racial, but this is probably of the same order as the inter-individual. Paradoxically, many polymorphisms are older than the species, by far (some HLA for example). And of course most "racial isolates" are very far from that. What any of this has to do with cultural differentiation is altogether problematical; but the data are only just now coming in. The main message is the remarkable unity of humankind, that there is no hint of speciation! ]

Standard evolutionary model is of gradual diversification. May be wrong.

Roots of the human revolution are debated: why suddenly a large brain? Recent emphasis on social interaction -- culture -- as a necessary part of human survival (but contra bees and ants). Few willing to comment on warfare as the driver: except Arthur C Clarke in 2001.

We probably underestimate the genetic differences between Pan and Homo: we stress coding regions, and tend to gloss over large structural

changes (though it's amazing how little different the chromosome maps are of humans and say cats!) Most of the structural gene differences we know about are probably immaterial to human-ness vs chimp-ness.

\_941217 Our contemporary species, *H. sapiens*, was well differentiated in Africa by about 200,000 BP, which coincides with a population expansion and dispersion to Europe and Asia. "Modern" *H. sapiens* appears about 50,000 BP.

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